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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,242	03/06/2002	Rudolf Feodor Kazarinov	AWDM1007	9668

7590 08/13/2003
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EXAMINER
ROJAS, OMAR R

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/092,242	Applicant(s) KAZARINOV ET AL.	
	Examiner Omar Rojas	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-9,11,13-15, and 18 is/are rejected.
- 7) ☒ Claim(s) 3,5,10,12 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 6, 13, 15, and 17 are objected to because of the following informalities: Claims 6, 13, 15, and 17 recite the limitation "thermal matching material" in each of the claims without providing adequate support for such a limitation in the specification. For the purposes of this examination, it is assumed that an "index matching material" rather than a "thermal matching material" was meant to be recited in claims 6, 13, 15, and 17.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2, 4, 7-9, 11, 14, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Pub. 2001/0033714 to Delisle et al. ("Delisle").**

Regarding claims 1 and 11, as seen in his Figures 2, 4, and 5, Delisle shows a folded optical waveguide structure comprising: a substrate (22) supporting a waveguide slab (16) and an array of laterally spaced grating waveguides (14 and/or 40) extending from the slab (16) along the substrate (22) to propagate optical signals to and from a reflective surface of a mirror member (32) disposed at an end of the substrate; and a thermally conductive body (54, 56) interposed between the mirror member and the substrate, the thermally conductive body (54 and/or 56) being so dimensioned and having a thermal coefficient of expansion such that temperature induced changes in wavelengths of said optical signals propagated along the grating array waveguides and reflected from the reflective surface of the mirror member (32) are substantially compensated by dimensional changes of the body tilting the mirror member with respect to the grating waveguides at said end of the substrate. Id. at pg. 3, sections [0041]-[0042].

Regarding claim 2, the said temperature induced changes in wavelengths include changes result from changes in the index of refraction of said waveguide gratings. Id. at page 1, section [0007].

Regarding claim 4, as seen in Fig. 5, the thermally conductive body (54, 56) is supported by the mirror member (32).

Regarding claims 7-8, the use of a metal such as copper or aluminum for the thermally conductive body (54, 56) of Delisle would either be inherently within the scope of Delisle or obviously expedient in view thereof. Thus, claims 7-8 are alternatively rejected under 35 U.S.C. 103 as being obvious over Delisle.

Regarding claim 9, the use of a reflective surface comprising a coating on glass for the mirror (32) of Delisle would either be inherent or obviously expedient in view of Delisle. Thus, claim 9 is alternatively rejected under 35 U.S.C. 103 as being obvious over Delisle.

Regarding claims 14 and 18, the previous remarks concerning claims 1 and 11 are incorporated herein. Delisle further discloses that the waveguide gratings (14) may terminate at a surface of the substrate via waveguides (40). Thus, all the limitations of claims 14 and 18 are disclosed by Delisle.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 6, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delisle as applied to claims 1, 11, and 14 above, and further in view of U.S. Patent 6,301,409 to Whiteaway et al. (hereinafter "Whiteaway").

Delisle appears to expressly differ from claims 6, 13, and 15, in that Delisle does not expressly disclose using an index matching material between the end of the grating waveguide array (14, 40) and the reflective surface of the mirror (32).

Whiteaway, on the other hand, teaches using an index matching material (not shown) between the end of a waveguide grating (80) and a reflector (18). Such a material is useful for adhesion purposes. *Id.* at Fig. 8 and col. 9, ll. 24-48.

The use of an index matching material would be desirable to either fill the space between the mirror (32) and lens (30) of Delisle, or alternatively, to attach the lens (30) to the substrate (22) as shown in Figs. 4-5 of Delisle, thereby meeting the claimed limitations.

Therefore, it would have been obvious to one of ordinary skill at the time of the claimed invention to obtain the invention specified by claims 6, 13, and 15.

Allowable Subject Matter

8. Claim 16 is allowed.

9. Claims 3, 5, 10, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claim 17 would be allowable if rewritten to overcome the objection set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 3, the prior art does not suggest, alone or in combination, all the recited features particularly compensating for temperature induced changes resulting from the thermal coefficient of expansion of the mirror member. Delisle does not appear to discuss the thermal effects of his mirror (32) on the optical wavelengths nor the thermal coefficient of expansion for the mirror.

Regarding claims 5, 16, and 17, there is no suggestion in Delisle, nor does it appear obvious in view thereof, to mount his thermally conductive body (54, 56) in a recess of the mirror (32).

Regarding claims 10 and 12, the thermally conductive body (54, 56) of Delisle appears to be on the same side of the grating array as the tilt or pivoting axis (58). There is no suggestion, nor does it appear obvious to have the pivoting axis (58) and the conductive body (54, 56) on opposite sides of the grating array as recited by claims 10 and 12.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (703) 305-8528 and whose e-mail address is *omar.rojas@uspto.gov*. The examiner can normally be reached on Monday-Friday (7:00AM-3:00PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hemang Sanghavi, can be reached on (703) 305-3484. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722 for regular communications. The examiner's personal work fax number is (703) 746-4751.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Omar Rojas
Patent Examiner
Art Unit 2874

or
August 11, 2003



HEMANG SANGHAVI
PRIMARY EXAMINER